12. Veil not conspicuous, soon evanescent. **I. subochracea** (Peck) Earle*
Veil conspicuous, webby-fibrillose; stipe longer and more fibrillose.
I. subochracea Burtii Peck

13. Spores spiny, echinate, aculeate or stellate. 14.
Spores angular or tuberculate, not spiny. 17.

14. Stipe fibrillose, short, 2.5 cm. 15.
Stipe subpruinose, longer, reaching 5 cm. or more. 16.

15. Pileus hygrophanous, dark brown when moist, canescent when dry.
I. maritima (Fr.) Sacc.
Pileus dry, yellowish-brown. *I. echinocarpa* Ell. & Ev.

16. Lamellae crowded, rounded behind; spores 10–12 $\mu \times$ 7–9 μ.
I. subfulva Peck
Lamellae subdistant, narrowed behind; spores globose, 12 μ. *I. rigidipes* Peck

17. Stipe more than 3 cm., ferruginous, apex white-pulverulent. 18.
Stipe less than 3 cm., pale brown, apex not white-pulverulent.
I. maritimoides (Peck) Sacc.

18. Pileus and stipe white; spores globose, nodulose-roughened.
I. infida (Peck) Earle†
Pileus umbrinous; stipe ferruginous; spores elliptic, angular.
I. lanuginosa (Bull.) Gillet

New York Botanical Garden.

SHORTER NOTES

A Question for Morphologists. — Recently‡ the theory has been advanced that the cotyledons of angiosperms are phylogenetically related to the so-called "foot" of bryophytes and pteridophytes and bear no morphological relation to foliage leaves. That the cotyledons which are primarily suctorial organs, should, under unusual conditions, enlarge, elongate their petioles, and develop much chlorophyll is perhaps no indication that they are modified foliar appendages, for the hypocotyl under like conditions also enlarges and becomes capable of photosynthesis as shown by Halsted.§ What bearing, if any, on this point, has the fact that branches may be induced to grow in the axils of the cotyledons by snipping off the plumule of the seedling? The accidental finding of

* *Agaricus* (*Hebeloma*) *subochraceus* Peck, Reg. Rept. 23: 95. 1873. *Hebeloma subochraceum* Sacc. Syll. 5: 796. 1887.

† *Agaricus* (*Hebeloma*) *infidus* Peck, Reg. Rep. 27: 95. 1877. *Hebeloma infidum* Sacc. Syll. 5: 796. 1887.

‡ H. L. Lyon. The Phylogeny of the Cotyledon. Postelsia, 1901: 55–86. 1902.

§ B. D. Halsted. On the Behavior of Mutilated Seedlings. Torreya, 2: 17. 1902.

a seedling peach with well-developed buds in the axils of the cotyledons led to experiments with beans, which ordinarily behave in a like manner, in every case producing axillary buds. Halsted records the same thing in seedlings of the Hubbard squash.

Edward W. Berry.

Passaic, N. J.

Arisaema pusillum in Pennsylvania and New Jersey. — As this interesting "Jack" has only recently been recognized as in good standing, and comparatively little has been recorded concerning its geographical distribution, a summary of its occurrence in the vicinity of Philadelphia may prove of interest.

It was first detected in Pennsylvania, so far as I am aware, by my cousin, Hugh E. Stone, who found a colony of plants in an open bog near Christiana, Lancaster County, May, 1902, a spot which furnishes the only station in the county, I believe, for *Sarracenia* and one of the few stations for *Drosera rotundifolia*.

Late in the same year Mr. Stewardson Brown found some plants in fruit at Clementon, N. J., in a wooded swampy spot, which he suspected to be this species, and in May of the present year his surmise was proved to be correct; while he also found the plant blooming abundantly near Medford, N. J., in similar shady, swampy ground. Soon after, I detected it in a shady swamp near Haddonfield, N. J., and Mr. Brown found a small colony near the Schuylkill River, a few miles above the city limits of Philadelphia. Subsequently I found it abounding in both open and shaded swamps in central Chester County, Pa., at a spot marked as the residence of J. D. Steele, in the map accompanying Darlington's "Flora Cestrica."

In some locations *Arisaema triphyllum* grew with *A. pusillum*, but the two were most readily distinguished and there was no suspicion of intergradation. *A. pusillum* is a close ally of *A. Stewardsoni*, both being late-flowering species as compared with *A. triphyllum*. Apparently *Arisaema Stewardsoni* replaces *A. pusillum* to the northward in the mountains, as we have it from various points in the Pocono region and from North Mountain, Sullivan County, Pa., where it occasionally associates with *A. triphyllum* as *pusillum*

does about Philadelphia, while it occurs in both open and shaded bogs.

A. pusillum and *Stewardsoni* may be distinguished at any stage from *triphyllum* by the shining green under-surfaces of the leaves.

Witmer Stone.

Academy of Natural Sciences, Philadelphia.

A new Bamboo from Cuba. — Among the grasses collected during the past year in Cuba was a queer member of the genus *Arthrostylidium*, which, upon investigation, proves to be undescribed. On account of the long narrow leaf-blades, quite unusual in this genus, this interesting addition to the grass flora of the West Indies has been given the name of

Arthrostylidium angustifolium. A branching shrub, climbing on bushes and small trees, with long and narrow leaf-blades and paniculate inflorescence. Stems 2–3 m. long, slender: leaves crowded at the end of the branches; sheaths overlapping, short, ciliate on the margins; ligule 4–5 mm. long, split into several long teeth; blades erect, strict, long-acuminate, 1.5–2.5 dm. long, 3–4 mm. wide, smooth and glabrous on the lower surface, the upper surface paler and rough on the nerves with very short hairs: inflorescence paniculate, slender, 1.5–3 dm. long, its branches erect and appressed, the larger 4–6 cm. long and bearing usually three appressed spikelets: spikelets linear, 22–30 mm. long, 2–2.5 mm. wide, laterally compressed, consisting of 8–12 scales which are appressed-pubescent on the inner surface; lower three scales empty, long-acuminate, much more pointed than the flowering scales; flowering scales 5–6 mm. long, about twice the length of the internodes of the rachilla, acute, ovate-lanceolate when spread out, about 9-nerved, the palet about as long as the scale.

Collected on El Yunque Mountain, Baracoa, Cuba, by Underwood & Earle, March, 1903, no. 941. Type specimen in the herbarium of the New York Botanical Garden.

The genus *Arthrostylidium* is mainly distinguished from the closely related *Arundinaria*, to which our two canes of the southern states belong, by having three empty scales at the base of the spikelet instead of two. It is confined to the tropics of America, and at present consists of about twenty species, including this new one from Cuba, nine of which are found in the northern part of

South America, including one endemic to the island of Trinidad; one, an outlying member of the genus, in Mexico; and the remaining species, ten in number, are confined to the West Indian Islands. Of these last, two are rather generally distributed throughout the islands; of the eight remaining species, five are peculiar to the island of Cuba, one to the island of Martinique and two to Porto Rico. Thus, while the genus is widely distributed in the West Indies, the species are found to be extremely local in their distribution.

George V. Nash.

New York Botanical Garden.

REVIEWS

A New Work on Ferns*

Dr. Waters has clearly outstripped all competitors in the task of producing a popular work on ferns, and, by adapting photography to the illustration of structure as well as form, he has succeeded in giving us really superb illustrations. Not only the habitat and environment of ferns, but leaf form and even the characters of sporangia, sori, and indusia are made to stand out in life-like relief. Unlike many works of a popular nature this one is thoroughly scientific and reliable in statement, and while fancy and folk-lore regarding ferns have been introduced they do not mar in any obtrusive way the value of the book. In the eighty full-page half-tones and the one hundred and fifty small illustrations, most of which also are half-tone reproductions of photographs, we have abundant illustrations of all the species of the Northeastern States so that one can easily identify all the common species from the illustrations alone. Details of fructification are beautifully brought out so that practically all that an ordinary hand-lens would give the observer is represented on these pages. Analytical keys based on the fructification and on the characters of the stipe are included. On the latter subject the author has hitherto made a valuable scientific study, the results

* Ferns: A Manual for the Northeastern States. By Campbell E. Waters. Square 8vo., pp. xi + 302. New York, Henry Holt & Co., 1903.